

We claim:

1           1.     In a radio communication system in which code division multiplexed data  
2     is communicated between a network part and a plurality of communication stations  
3     including a first station and at least a second station, an improvement of apparatus for  
4     facilitating communication of the data upon at least a first shared channel, said  
5     apparatus comprising:

6           a CDM (code division multiplexing) assignment information generator for  
7     generating CDM assignment information, the CDM assignment information forming a  
8     first multiple assignment information set and at least a second multiple assignment  
9     information set for communicating with each of the first station and the at least the  
10    second station, respectively.

1           2.     The apparatus of claim 1 wherein the at least the first shared channel  
2     comprises a single shared control channel and wherein the CDM assignment information  
3     generated by said CDM assignment information generator for communication to each of  
4     the first and the at least the second station, respectively, is communicated upon the  
5     single shared control channel.

1           3.     The apparatus of claim 2 further comprising a data frame generator  
2     coupled to receive the CDM assignment information, said data frame generator for  
3     generating a data frame, the data frames of selected frame lengths and containing the  
4     CDM assignment information.

1           4.     The apparatus of claim 3 wherein the selected frame lengths of the data  
2     frames formed by said data frame generator are of fixed lengths.

1           5.     The apparatus of claim 3 wherein the selected frame lengths of the data  
2     frames formed by said data frame generator are of variable lengths.

1           6.     The apparatus of claim 1 wherein the at least the first shared channel  
2 comprises first shared channel and at least a second shared channel and wherein the  
3 CDM assignment information generated by said CDM assignment information generator  
4 for communication to each of the first and at least the second stations, is communicated  
5 to a corresponding selected one of the first shared channel and the at least the second  
6 shared channel.

1           7.     The apparatus of claim 6 further comprising a data frame generator  
2 coupled to receive the CDM assignment information, said data frame generator for  
3 generating a data frame, the data frames of selected frame lengths.

1           8.     The apparatus of claim 6 wherein the selected frame lengths of the data  
2 frames formed by said data frame generator are of fixed lengths.

1           9.     The apparatus of claim 6 wherein the selected frame lengths of the data  
2 frames formed by said data frame generator are of variable lengths.

1           10.    The apparatus of claim 1 wherein the first and at least second mobile  
2 stations, respectively, register with the radio communication system pursuant to a  
3 registration scheme and wherein the CDM assignment information generated by said  
4 CDM assignment information generator is generated responsive to effectuation of  
5 registration of respective ones of the first and at least second mobile stations.

1           11.    The apparatus of claim 1 wherein the radio communication system  
2 comprises a cellular communication system operable generally pursuant to a CDMA  
3 2000 operating specification providing for 1xEV-DV data communications, wherein the  
4 radio communication system is defined in terms of logical layers including a physical  
5 layer and at least one higher-level logical level, and wherein said CDM assignment  
6 information generator is embodied at the higher-level logical layer.

1           12.    The apparatus of claim 11 wherein the CDM assignment information  
2 generated by said CDM assignment information generator forms formatted messages  
3 formed of message parts, the message parts concatenated together to form the message,  
4 individual ones of the message parts associated with individual ones of the first and at  
5 least second mobile stations.

1           13. In a method of communicating in a radio communication system in which  
2 code division multiplexed data is communicated between a network part and a plurality  
3 of communication stations including a first mobile station and at least a second mobile  
4 station, an improvement of a method for facilitating communication of the data upon at  
5 least a first shared channel, said method comprising:

6           generating CDM assignment information at the network part, the CDM  
7 assignment information forming a first multiple assignment information set and at least  
8 a second multiple information assignment set for communicating with each of the first  
9 mobile station and the at least the second mobile station, respectively; and

10           sending the CDM assignment information generated during said operation of  
11 generating to the first and the at least second mobile stations upon the at least the first  
12 shared channel.

1           14. The method of claim 13 further comprising the preliminary operation of:  
2           registering the first and at least second mobile stations with the radio  
3 communication system pursuant to a system in protocol, and wherein  
4           said operation of generating is performed responsive to registration performed  
5 during said operation of registering.

1           15. The method of claim 13 wherein the at least the first shared channel  
2 comprises a single shared control channel, and wherein said operation of sending  
3 comprises sending the CDM assignment information upon the single shared channel.

1           16. The method of claim 15 wherein the assignment information generated  
2 during said operation of generating is formatted into a frame and wherein the frame is of  
3 a final length.

1           17.    The method of claim 15 wherein the assignment information generated  
2 during said operation of generating is formatted into a frame and wherein the frame is of  
3 a variable length.

1           18.    The method of claim 13 wherein the at least the first shared channel  
2 comprises the first shared control channel and at least a second shared channel and  
3 wherein said operation of sending comprises selectably sending the CDM assignment  
4 upon the first and at least second shared channels, respectively.

1           19.    The method of claim 18 wherein the assignment information generated  
2 during said operation of generating is formatted into a frame and wherein the frame is of  
3 a fixed length.

1           20.    The method of claim 19 wherein the assignment information generated  
2 during said operation of generating is formatted into a frame and wherein the frame is of  
3 a variable length.